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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,935	12/18/2001	Alan Sullivan	30231/40	7292

7590 07/02/2003

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EXAMINER	
TRAN, TAM D	

ART UNIT	PAPER NUMBER
2676	7

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/026,935	SULLIVAN ET AL.	
	Examiner	Art Unit	
	Tam D. Tran	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-69* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7,9-28,30,32-51,53 and 55-69* is/are rejected.

7)☒ Claim(s) *6,8,29,31,52 and 54* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5,6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, 9-28, 30, 32-51, 53, 55-69 are rejected under 35 U.S.C. 102(b) as being anticipated by Mochizuki et al. (USPN 5706816), hereinafter simply Mochizuki.

2. In regard to claims 1, 24, 47, Mochizuki teaches a system and method of displaying a three-dimensional image comprising: generating three-dimensional image data for a plurality of pixels, see col.3 lines 59-67, the three-dimensional image data comprising (x,y,z) coordinate and color information, wherein z-coordinate information represents image depth information; see col.9 lines 31-36, and storing the three dimensional image data at locations in a frame buffer in accordance with the z-coordinate information. See col.8 lines 1-3.

3. In regard to claims 2, 25, 48, Mochizuki teaches a system and method of displaying a three-dimensional image wherein storing comprises: reading the z-coordinate information; scaling the z-coordinate information within a range corresponding to a number of display elements upon which the image data is to be displayed; see col.7 lines 55-61; and assigning locations in the frame buffer for the three-dimensional image data based on the scaled z-coordinate information. See col.8 lines 1-3.

4. In regard to claims 3, 26, 49, Mochizuki teaches a system and method of displaying a three-dimensional image wherein storing comprises: storing image data associated with a first pixel in a first memory location; and storing image data associated with a second pixel in a second memory location; see col.17 lines 39-44; wherein the z-coordinate information associated with the first pixel is substantially similar to the z-coordinate information associated with the second pixel, and the first memory location is in close logical proximity to the second memory location. See col.17 lines 50-55.

5. In regard to claims 4, 27, 50, Mochizuki teaches a system and method of displaying a three-dimensional image wherein the storing comprises storing image data having substantially identical z-coordinate information in memory locations of the frame buffer that are logically substantially proximate. See col.8 lines 1-3.

6. In regard to claims 5, 28, 51, Mochizuki teaches a system and method of displaying a three-dimensional image further comprising displaying an image on a display having addressable (x,y,z) coordinates. See col.7 lines 55-62.

7. In regard to claims 7, 30, 53, Mochizuki teaches a system and method of displaying a three-dimensional image further comprising displaying an image on a display having addressable (r, Y, and theta) coordinates. See col. 10-55.

8. In regard to claims 9, 32, 55, Mochizuki teaches a system and method of displaying a three-dimensional image wherein storing comprises: providing a first memory at least as large as the frame buffer; filling the first memory with the three dimensional image data; and transmitting the contents of the first memory location to the frame buffer in a single operation. See col.8 lines 62-67.

9. In regard to claims 10, 33, 56, Mochizuki teaches a system and method of displaying a three-dimensional image wherein storing comprises: providing a first memory smaller than the frame buffer; filling the first memory with a portion of the three-dimensional image data; transmitting the contents of the first memory to a second memory; rasterizing the three dimensional image data; and transmitting the contents of the second memory location to the frame buffer. See col. 8 line 62- col.9 line 16.

10. In regard to claims 11, 34, 57, Mochizuki teaches a system and method of displaying a three-dimensional image wherein storing comprises: providing a first memory smaller than the frame buffer; filling the first memory with the three dimensional image data; and transmitting the contents of the first memory location to the frame buffer. See col.8 lines 62-67.

11. In regard to claims 12, 35, 58, Mochizuki teaches a system and method of displaying a three-dimensional image further comprising transmitting the three-dimensional image data to a display in accordance with the z-coordinate information. See col.9 lines 34-36.

12. In regard to claims 13, 36, 59, Mochizuki teaches a system and method of displaying a three-dimensional image wherein the image data further comprises transparency information and brightness information. See col.11 lines 15-27.

13. In regard to claims 14, 37, 60, Mochizuki teaches a system and method of displaying a three-dimensional image further comprising adjusting one of the brightness information and color information of a first pixel based on transparency information of a second pixel. See col.11 lines 15-27.

14. In regard to claims 15, 38, 61, Mochizuki teaches a system and method of displaying a three-dimensional image wherein the z value associated with the first pixel is greater than the z value associated with the second pixel. See col.12 lines 53-57.

15. In regard to claims 16, 39, 62, Mochizuki teaches a system and method of displaying a three-dimensional image further comprising displaying an image on a three dimensional volumetric display. See col.11 lines 15-55.

16. In regard to claims 17, 40, 63, Mochizuki teaches a system and method of displaying a three-dimensional image wherein the three dimensional volumetric display comprises multiple planes upon which image data is displayed. See col.2 lines 13-40.

17. In regard to claims 18, 41, 64, Mochizuki teaches a system and method of displaying a three-dimensional image wherein the three dimensional volumetric display comprises a plurality of self-luminescent optical elements. See col.11 lines 15-55.

18. In regard to claims 19, 42, 65, Mochizuki teaches a system and method of displaying a three-dimensional image wherein the three dimensional volumetric display is a swept-volume display. see col. 11 lines 15-55.

19. In regard to claims 20, 43, 66, Mochizuki teaches a system and method of displaying a three-dimensional image wherein generating comprises generating the three-dimensional image data with a personal computer. See col.2 lines 42-50.

20. In regard to claims 21, 44, 67, Mochizuki teaches a system and method of displaying a three-dimensional image wherein generating comprises converting data corresponding to a three-dimensional image into data corresponding to a plurality of two-dimensional cross-sectional images of the three-dimensional image. See col.4 lines 10-27.

21. In regard to claims 22, 45, 68, Mochizuki teaches a system and method of displaying a three-dimensional image wherein the generating comprises generating the three-dimensional image data using application program interface calls. See col.3 lines 59-67.

22. In regard to claims 23, 46, 69, Mochizuki teaches a system and method of displaying a three-dimensional image wherein generating comprises generating data indicating a plurality of geometric primitives that define three-dimensional image. See col.4 lines 10-27.

Allowable Subject Matter

23. Claims 6, 8, 29, 31, 52, 54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tam D. Tran** whose telephone number is **703-305-4196**. The examiner can normally be reached on MON-FRI from 8:30 – 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Matthew Bella** can be reached on **703-308-6829**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Tam Tran
T T
Examiner

Art unit 2676

JEFFERY A. BROWN
PRIMARY EXAMINER